WHAT IS CLAIMED IS:

1. An anastomosis device for use in coupling an end of a graft vessel to a side of a target vessel, the target vessel having an opening formed in a side wall thereof for insertion of the device, the device comprising a tubular member, at least a portion thereof being radially compressible to a compressed state for insertion of the tubular member into the opening in the target vessel, and expandable from the compressed state to an expanded state for engagement of the graft vessel with an inner surface of the target vessel after insertion of the tubular member into the opening in the side wall of the target vessel, the compressible portion of the tubular member having an inner surface and an outer surface defining a wall thickness therebetween, the wall thickness of the compressible portion in its compressed state being less than the wall thickness of the compressible portion in its expanded state.

2. The device of claim 1 wherein said compressible portion is self-expanding.

3. The device of claim 1 wherein said tubular member further comprises a flexible tube.

4. The device of claim 3 wherein said flexible tube is made from an implantable biocompatible material.

5. The device of claim 4 wherein said biocompatible material comprises a plastic material.

6. The device of claim 1 wherein said tubular member further comprises a coil interposed between an inner and outer layer.

7. The device of claim 6 wherein said coil is formed from a biocompatible material.

8. The device of claim 7 wherein said biocompatible material is selected from a group consisting of stainless steel and nitinol.

9. The device of claim 7 wherein said biocompatible material is selected from a group consisting of plastic, polyurethane, and polycarbonate material.

10. The device of claim 6 wherein said inner and outer layers are formed from a low durometer plastic material.

11. The device of claim 10 wherein said plastic material is silicone.

12. The device of claim 1 wherein said compressible portion is made from a biocompatible material.

13. The device of claim 12 wherein said biocompatible material comprises a non-metallic material.

14. The device of claim 13 wherein said non-metallic material comprises a foam material.

15. The device of claim 1 wherein said tubular member further comprises a flexible tube and wherein said radially compressible portion comprises a coupling member surrounding the tube, the coupling member having an inside diameter of between about 10 to 30 percent smaller than an inside diameter of the tube.

16. The device of claim 1 wherein an outside diameter of the compressible portion in its expanded state is between about 10 to 80 percent larger than an inside diameter of the target vessel.

17. The device of claim 1 wherein an inside diameter of the tubular member is between about 0.5 mm to 6.0 mm.

18. The device of claim 1 further comprising the graft vessel, the vessel extending longitudinally through the tubular member and a free end of the graft vessel being everted over and coupled to at least a portion of the radially compressible portion of the tubular member.

19. The device of claim 18 wherein the graft vessel is coupled to the graft coupling member with one or more sutures.

20. The device of claim 1 further comprising an introducer having an outer diameter sized to permit insertion of the introducer through the opening in the side wall of the target vessel.

21. The device of claim 20 wherein the introducer has a groove formed in one end thereof through which a suture can be attached to the graft vessel and the tubular member.

22. The device of claim 21 wherein the introducer is configured to be pulled back and separated from the tubular member after the introducer is inserted at least partially into the target vessel through the opening in the side wall of the target vessel.

23. The device of claim 1 wherein the entire tubular member is radially compressible.

24. A method for coupling a graft vessel and a target vessel in an end-to-side anastomosis comprising the steps of:

providing a graft vessel with a fastener coupled thereto, the fastener comprising a radially compressible portion;

exerting an inwardly directed radial force over at least a portion of the compressible portion until the fastener has an outer diameter smaller than the diameter of an opening formed in a side wall of the target vessel;

inserting at least a portion of the fastener into the opening in the side wall of the target vessel;

and removing the radial force to allow the compressible portion of the fastener to radially expand to sealingly engage the graft vessel with an inner wall of the target vessel.

25. The method of claim 24 wherein the step of providing a graft vessel with a fastener coupled thereto comprises attaching the graft vessel to the fastener coaxial with the fastener.

26. The method as set forth in claim 24 wherein the step of attaching the graft vessel to the fastener comprises inserting a free end of the graft vessel longitudinally through an opening in the fastener.

27. The method as set forth in claim 24 further comprising everting a free end of the graft vessel over an end of the fastener.

28. The method as set forth in claim 27 further comprising suturing the everted end of the graft vessel to the fastener.

29. The method of claim 24 wherein the step of exerting a radial force comprises inserting the compressible portion of the fastener longitudinally through an opening in an introducer which has an inner diameter smaller than an outer diameter of the compressible portion of the fastener in its expanded state.

30. The method of claim 29 wherein the step of removing the radial force comprises removing the introducer from the fastener.